

REMARKS – General

By the above amendment, the applicant has rewritten all claims in order to define the invention more particularly and distinctly so as to overcome the technical rejections and define the invention over the prior art.

In writing these claims, the Applicant has carefully checked that all cited in the claims as independent sources used for analysis to determine threats are in agreement with the dependency of the threats cited in the Specification. As Examples:

<u>Dependent Threat</u>	<u>Independent Analysis Source</u>
Fog	Climatic Map
Wind	Wind Model
Underwater Obstruction	Navigation Chart
d/o	Tide Table
Severe storms	Doppler weather radar image

This was conducted to order to insure no new material would be introduced in the amended claims.

In order to provide the Examiner some vision of where and how the first application of the invention a general description of the project is included as Attachment A to this Amendment B.

Item 2. The rejection of Claims 1 – 17 Under § 102 as being anticipated by Kish et al [6,904,341]

Kish et al (abstract, column1, lines 29-40, column 2, lines 11-29)

The new claims 18 to 30 now correctly describe the Applicant's invention as a seamless, scalable and self-sufficient system with a special purpose device that operates without electrical connections to vessel sensors nor to an on-board vessel's navigation system that includes a GPS for vessel position data. The special purpose device in the Applicant's invention houses its own integrated GPS position circuit.

The Kish Patent describes the process of transmitting this 'real-time' or current sensor and GPS position data to a "remote fail-safe server." It was determined from reviewing the Kish Patent Specification, that the Examiner has defined this server as the main processor that is located on-board the vessel and therefore directly associated with the vessel operating systems (see Figure 1, item 12).

The Applicant's claims have been amended to emphasize a navigation system where, because of the application and the location of regional data sources for analysis, the remote fail-safe server must be at an on-shore location for each region of application. Locating the server on-shore is principally because of access by the immediate system user, security, limitations and cost-effectiveness of the digital wireless communications infrastructure. Additionally, there is a considerable advantage of having the volumes of intelligent software at a central location and not resident on each vessel because of the complex software and database maintenance involved and the potential of sever destruction in an accident. This latter potential may be considered a life-threatening condition.

Furthermore, the description of the fail-safe attributes of the server in the specification of the Kish Patent omits hardware and functionality that are a prerequisite to achieve the nomenclature of "fail-safe" as the accepted industry practice.

For the system of the Applicant's invention, the server must be absolutely fail-safe in accordance with industry standards because of the life-threatening conditions that will prevail should the computer server fail to operate automatically.

Kish et al (column 3, lines 43-57, column 5, lines 13-22, and column 10, lines 3-12)

The Kish Patent refers to analysis of the static and dynamic sensor and vessel position data by the server in order to provide an off-normal condition report. The information being analyzed by the server is current or 'real-time' data. And, accordingly, the condition report provided is an 'after-the-fact' result of the analysis.

The Applicant's invention describes a system that analyzes future or before-the-fact information in order to provide proactive warnings for future threats and also provides course heading advisories in order to avoid a vessel encounter with these threats and result in a serious accident.

As a direct comparison, all aspects of analyses within the Kish et al Patent analysis methodologies are based on a 'Reactive' or "after-the-fact" system whereas the Applicant's invention analysis methodology is based solely on a novel 'Proactive' or 'Before-the-fact' system.

Kish et al (column 11, lines 65 to column 13, line 9)

The Examiner has referenced the Kish et al Patent as indicating "the special purpose device is further adapted to automatically navigate the vessel."

The context of the word 'navigate' includes setting the speed, heading, sails (if applicable), ballast and other available manipulated variables of the navigation system. Either one or all of these variables are controlled as necessary in order to achieve a prescribed course. For many conditions, this is a highly complex operation and if it is not conducted with the interactive skills of an experienced Captain or operator in command, the special purpose device will in itself require highly complex control algorithms.

In order to avoid misconception of the capabilities of the special purpose device of the Applicant's claims have been refined to reflect that only proactive course (heading) advisories are provided. It remains in the Captain's or operator's responsibility to interface these advisories with the rudder used to steer the vessel.

The special purpose device of the Applicant's invention of a Navigation Assistance System is only capable of providing proactive warnings and proactive heading advisories to avoid future threats. This information is displayed by the special purpose device.

To further clarify the Applicant's claims on the subject of vessel control, it is noted that in the field of automatic control, an advisory output, such as proactive heading advisories, is termed "supervisory control" in practice; therefore, the Applicant's claims now stipulate that the advisory course headings are in fact the "supervisory control" from the novel application of the classic feedback control algorithm. The operation of the classic feedback control algorithm is presented in the Applicant's Specification and is again repeated and paraphrased follows:

The classical feedback control algorithm compares the current vessel position data to the future state (position, heading and speed) of the future geophysical conditions in order to determine if the vessel will be threatened. Output of the control algorithm is supervisory control in nature. That is, a proactive warning is produced in combination with a proactive advisory heading. Direct control of the vessel cannot be conducted by a remote source, such as the shore-based server, since there are liability considerations. The Captain, or operator, responsible for the vessel may elect to interface the advisory heading to the rudder or helm control from a serial connector located on the special purpose device. In which case, the Captain or operator remains in total control of the vessel since he/she is totally liable for the vessel, its contents and occupants in the event of an accident. Under these vessel control conditions, the Captain, or operator, will still maintain an alert watch. The special purpose device does not 'automatically' control the navigation of the vessel, but rather augments the decisionmaking of the person in charge. At the same time, the navigation system of the Applicant's invention continuously monitors the provided course advisory to insure the vessel continues to be safe. This is accomplished by means of the continued routine reception of the vessel's GPS information and compares this with the setpoints produced by the analysis of the future geophysical and other conditions. That is, the system automatically insures that other on-coming future threats are also correctly 'advised-for.'

Kish et al (Figure 1, columns 1 and 2)

The Examiner has cited that the Kish Patent makes reference to one or a plurality of separate navigation assistance systems for analyzing sensor and position data. On review of the specification, the navigation assistance systems referred to in the Kish Patent are remote service servers (Figure 1, Item 46) that conduct an analysis of vessel historical information and from this provide a predictive failure analysis. This after-the-fact analysis departs considerably in both purpose and implementation from the novel proactive results provided by the analysis methodology of the Applicant's invention.

As a direct comparison, the Kish Patent analysis methodology cited here is again based on a 'Reactive' or "after-the-fact" system whereas the Applicant's invention analysis methodology is based on a novel 'Proactive' or 'Before-the-fact' system.

Kish et al (column 5, lines 24-44 and column 11, lines 5 - 25)

In order to avoid misconception of the capabilities of the special purpose device with regard to communications, the Applicant's invention the claims have been refined to indicate that the only communications between the operator and the server are by means of the operator keyboard integral with the special purpose device. And, with regard to communications exterior to the server, the server itself is used to automatically provide an information packet directly to a second party – appropriate emergency response services and/or Government jurisdictions. There is no longer any mistaken reference to third party and two-way communication.

Kish et al (column 15, lines 25-45)

In the Kish Patent, referring to Figure 1, Item 20, the Examiner has evidently assigned the input device the nomenclature of special purpose device. The applicant cannot find the particular reference “the special purpose device having a plurality of ports for data transfer with other electronic devices and emergency beacon meanetc.” Nor, on doing an electronic scan of the entire Kish Patent document was the Applicant able to find the word “beacon.”

Therefore, in order to avoid misconception of the capabilities of the special purpose device of the Applicant's invention the claims have been refined in a manner to avoid the potential of further rejection of claims relating to this particular subject matter.

Item 3. Rejection of Claims 1 – 17 Under § 102 as being anticipated by Cline [US 2004/0193367]

Before presenting the Applicant's detailed arguments with regard to references in the Cline Patent Application, two general observations are made regarding the analysis methodology applied in the Cline Patent Application.

First, the analysis methodology uses an accumulation of current and past historical information (GPS information sent from maritime ships) and compares this with previously determined tolerances regarding merchant ship movement.

Secondly, all predictions are determined by means of extrapolation of past historical data.

Both of these analyses methodologies function on the basis of current or real-time and historical data.

As a direct comparison, the Cline Patent Application analysis methodology is based on a 'Reactive' or “after-the-fact” system whereas the Applicant's invention analysis methodology is based on a novel 'Proactive' or 'Before-the-fact' system.

Cline ([0003],[0004])

In this reference, the Cline Patent Application discusses the capability to track ship movements from “a special purpose device” determine suspicious movements based on predetermined “threshold values corresponding to the current geographic zone. The Examiner has made mention of the capability of the “special purpose device” to collect sensor and vessel

position data and to transmit the data to a remote fail-safe server. This statement appears to have little or no relevance to the Cline Patent Application since there are no sensors involved.

Cline (other paragraph numbers)

On further review of the Examiner's references, the Applicant has determined that most of the sentences appearing adjacent to the Cline references have been cut and pasted from the Kish et al Patent references (Item 2., pages 2 & 3 of the Detailed Action) yet the paragraph numbers for the Specification of the Cline Patent Application are retained.

With reference to the Cline Patent Application [2004/0193367] again, current and historical information is collected in order to predict by extrapolation if there is a terrorist crisis on board or oil spill. Or, if the vessel arrival time at a given destination will require adjustment of either the destination arrival time or an adjustment of the speed and course of the vessel to arrive at the destination at a proper time. There is no obvious reference that indicates that Cline has anticipated applying or even the potential of applying an analysis methodology that comprehends future geophysical information such as that novel to the Applicant's invention. Nor is there any means to routinely and automatically predict the threatening conditions warrant a proactive warning that will obviate the potential of an accident to a vessel or injury to its occupants.

Therefore, the Applicant defers to his initial appraisal of the Cline Patent Application in terms of the analysis methodology and its relationship to that of the Applicants invention. That is,

As a direct comparison, the Cline Patent Application analysis methodology is based on a 'Reactive' or "after-the-fact" system whereas the Applicant's invention analysis methodology is based on a novel 'Proactive' or 'Before-the-fact' system.

Further, the Applicant requests that the Examiner clarify as to how I am to further respond to the Cline referenced paragraphs. It would seem that my prior arguments in response to the previous Kish et al Patent references will suffice.

Item 4. Conclusion: The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The Applicant has carefully considered the following references and wishes to reply with an overall summary of all the references in this statement.

After careful review of the Specifications and Claims of all the references, the Applicant has concluded that most of the references fall into a similar category (one reference had no system to compare with),

The basis for defining this category required that each Patent and Patent Application be reviewed for to establish:

- its purpose

- type of data transmitted from the vessel to the server or other computer
- analysis methodology applied and its time base (current, historical or future) and,
- application of the result of the analysis.

On the basis of this comprehensive review of the references, these Patents and Patent Applications were categorized according to whether the system was a Reactive (or an 'after-the-fact') system or a Proactive system.

In the event that a reference was determined to be a proactive system, the reference would be intently reviewed in terms of prior novelty and/or anticipation of the Applicant's invention. (A brief Summary of each reference is included as Attachment B to this Amendment.)

<u>Patent/Application #</u>	<u>Inventor(s)</u>	<u>Date</u>	<u>Category</u>
6,469,641	Lash et al	Oct. 2002	Reactive
6,487,983	Jonsson et al	Dec. 2002	Reactive
6,611,737	El-Tahan et al	Aug. 2003	Reactive
6,658,349	Cline	Dec. 2003	Reactive
6,816,088	Knoska et al	Nov. 2004	Reactive
US2004/0 111195	Vries et al	Jun. 2004	Reactive
US2004/0217900	Martin et al	May. 2004	Reactive
US2004/0243859	Mueller et al	Dec. 2004	No System Described

Therefore, after serious consideration of these additional references, as specified by the Examiner, the Applicant has concluded that the analysis methodology of these references is based on a 'Reactive' or "after-the-fact" navigation system whereas the Applicant's invention analysis methodology is based on a novel 'Proactive' or 'Before-the-fact' navigation system.

Conclusion

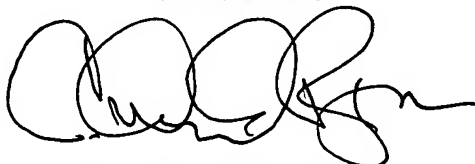
For all of the above reasons, the applicant submits that amended the claims are now in proper form, and that the claims all define patentably over the prior art. There the applicant submits that this application is now in condition for allowance, which action he respectfully solicits.

Conditional Request for Constructive Assistance

The applicant has amended the claims of this application so that they are proper, definite, and define a novel system which also is unobvious. If, for any reason this application is not believed

to be in full condition for allowance, the applicant respectfully requests the constructive assistance and suggestions of the Examiner pursuant to M.P.E.P. § 2173.02 and § 707.7 (j.) in order that the undersigned can place this application in allowable condition as soon as possible and without need for further proceedings.

Very respectfully,



C. (Charles) David Rogers

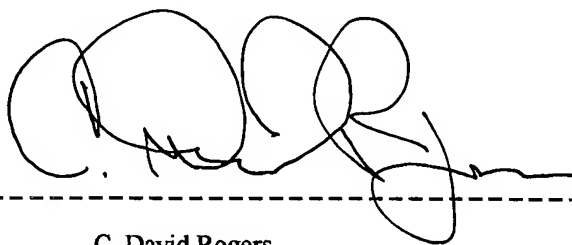
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30 September 2005



C. David Rogers

Attachment A: Abbreviated Description of the First Application of the Navigation Assistance System

Attachment B: Summary of the Examiner's Named Patents for Applicant to Take into Serious Consideration

**Attachment A
Amendment B**

Appn. Number: 10/692202
Appn. Filed: 2003 Oct 23
Applicant: C. (Charles) David Rogers
Title: System and Apparatus for Automatic and Continuous Monitoring,
Proactive Warning and Control of One or More Independently Operated
Marine Vessels

Examiner/GAU: Gertrude Arthur/3661

**Abbreviated Description of the First Application of the
Navigation Assistance System**

Notably, the primary objective of the Navigation Assistance System invention is to prevent recreational and small commercial vessel accidents that result in fatalities and serious injuries to vessel occupants.

(1999 – 2003 Accident avg. 6,500 Fatalities: 710 Serious Injuries: 4150)

The methodologies of the invention are specifically designed to warn-for 62% of the causes associated with serious accidents in the recreational and small commercial boating sector.

This is accomplished by means of an independent, seamless and scalable system that automatically provides optimized proactive warnings for future threats caused by the environment that occur independent of the vessel operating system. This navigation system is designed to coexist as a system platform in a hierarchy above that of the vessel and provides advisory warnings and courses (float plans) aimed to remove the vessel from on-coming threats. Further, the system overcomes current delays in emergency communication and prevents nuisance and hoax emergency calls by providing direct, encrypted and identified communication from an operator keypad to the necessary emergency response services.

A yet further enhancement of the navigation system of the invention is to provide mission support for the Department of Navy's Marine Vessel Traffic System – US Patent No. 6,249,241 B1 and the Department of Homeland Security – US Coast Guard and US Border Patrol coastline and inland waters emergency response and surveillance, respectively.

The demonstration prototype system will be tested in the Potomac region on Chesapeake Bay in late 2006. The shore-based fail-safe server will be installed at a local Towing Service facility headquartered in Alexandria, VA. Five Special purpose units will be provided to one on a towboat and four on recreational vessels. Simulation data will include severe storms, underwater hazards, collision, on-board fire, man-overboard, terrorist security violation, fog, and many others. Both private boating organizations and Government Agencies will be invited to demonstrations of the system. The system is initially designed for application in the Private Sector boating-consumer market.



Attachment B Amendment B

Appn. Number: 10/692202
Appn. Filed: 2003 Oct 23
Applicant: C. (Charles) David Rogers
Title: System and Apparatus for Automatic and Continuous Monitoring,
Proactive Warning and Control of One or More Independently Operated Marine
Vessels

Examiner/GAU: Gertrude Arthur/3661

Summary of the Examiner's Named Patents For Applicant to Take into Serious Consideration

6,469,641 Lash , et al. October 22, 2002

Central item in the Patent is the 'Control Unit' mounted on the deck of the boat that allows for monitoring and alarming for off-normal conditions as well as enabling the remote monitoring of vessel sensors. One main focus is security and safety of the vessel while the operator is not on board. Another is theft and the ability to stop the boat.

REACTIVE OR 'AFTER THE FACT' SYSTEM

6,487,983 Jonsson , et al. December 3, 2002

A clever handheld unit for moving about the vessel and monitoring and controlling various operational conditions (gear changing of drive, GPS is considered an 'add-on.' Also on-vessel central unit is interfaced with remote on-land alarm central (computer) located at the "boat club" then can dial-up owner.

REACTIVE OR 'AFTER THE FACT' SYSTEM

6,611,737 El-Tahan , et al. August 26, 2003

Excellent Patent discussing predictive control system for compensating ships heading that may change due to roll, pitch and yaw. These variables are caused by forcing functions on hull - waves, wind and currents. System applies a neural network in the predictive control.

Likely derived from use on space vessels and aircraft autopilots.

**PREDICTIVE NEURAL NETWORK –
RELATES TO DIRECT VESSEL CONTROL ENVIRONMENT**

REACTIVE OR ‘AFTER THE FACT’ SYSTEM

6,658,349 Cline December 2, 2003

Another Cline Patent dealing with ‘suspicious activity’ noted when there are abrupt changes in the course of a maritime ship. Specifically those changes in known zones of piracy, terrorism, etc.

REACTIVE OR ‘AFTER THE FACT’ SYSTEM

6,816,088 Knoska , et al. November 9, 2004

A conventional on-vessel monitoring that uses sensors to detect fire, smoke, etc. and transmit to a central server that uses a website to contact the owner. Also central website calls various jurisdictions appropriate for the off-normal warning. Uses GPS tracking to show location. System is monitoring only.

REACTIVE OR ‘AFTER THE FACT’ SYSTEM

20040111195 Vries, Jeroen Joost de ; et al. June 10, 2004

This Application utilizes a ‘panel mount’ system and it is focused primarily on sensed on-vessel conditions. Direct control is not exercised, but rather instructions and messages are sent back either text or voice. In addition, instructions are left in the database for the dockmaster in the event a off-normal condition requires contact with a third party.

This is the unit ‘SeaKey’ by Volvo that was reviewed by TowBoatUS and didn’t fit their needs, and was viewed as too expensive.

REACTIVE OR ‘AFTER THE FACT’ SYSTEM

20040217900

Martin, Kenneth L. ; et al. November 4, 2004

This Application relates to a complete on-vessel system that has facilities for satellite communications with a monitoring center. The GPS system is included within the 'primary terminal.' The monitoring center is interfaced with the Internet and allows the owner to track the vessel and send messages to the vessel.

"The vessel operator can use the present invention to open, modify, and close float plans, to report problems, weather, accidents and emergencies."

The Coast Guard or a private security firm can be automatically notified, or notified using the by the user or the monitoring center.

REACTIVE OR 'AFTER THE FACT' SYSTEM

20040243859

Mueller, Karl-Heinz ; et al. December 2, 2004

Note date of filing after my PPA 12/02/2002

Total ship system with no apparent reference to remote monitoring for threats exterior to the vessel.

NO APPARENT REMOTE SYSTEM DESCRIBED
